FINDING OF NO SIGNIFICANT IMPACT
BARK BEETLE MANAGEMENT PLAN
ROCKY MOUNTAIN NATIONAL PARK

Bark beetle infestations are killing ponderosa, lodgepole, limber and pinyon pine trees in Colorado forests and elsewhere throughout the western states. Infestations are increasing in Rocky Mountain National Park (RMNP). Areas of concern include the park's southwest corner near Grand Lake, where a significant pine beetle infestation is moving into the park, and localized infestations in developed areas of the park that are affecting trees in campgrounds and around visitor centers. Trees that have been killed by bark beetles can become safety hazards for visitors and park employees, reduce aesthetic values, contribute to forest fuels that can influence wildland fires, and may cause property damage within the park and on adjacent private property. An environmental assessment (EA) was prepared in 2005 to report on issues and examine options for managing bark beetles; to provide an opportunity for public comment on alternatives; and as a necessary step in determining the impact of the various alternatives proposed in managing the current infestation. A preferred alternative (Alternative 2) was identified in the EA; the preferred alternative was selected after a careful review of resource and visitor impacts and public comment. Concerns identified by park staff and during scoping that were evaluated in the EA included protecting large mature trees in campgrounds, picnic areas, national register sites, visitor centers, park utility and housing areas, the environmental impacts from the use of the insecticide Carbaryl to protect high value trees, the cost of spraying Carbaryl and implementing other management techniques, increased slash pile burning of infested trees, and community relations and safety.

PREFERRED ALTERNATIVE

The preferred alternative (Alternative 2) will permit a full range of Integrated Pest Management (IPM) techniques to be implemented that include the continuation of current bark beetle management such as the removal of beetle infested trees, removal of hazardous trees, watering, mistletoe removal, and in addition, will allow the use of Carbaryl and an antiaggregative pheromone. Verbenone, a commercially available product, which is the principal antiaggregative pheromone component of the mountain pine beetle, was analyzed, but determined to not be effective and had human health and safety concerns. It will be used if proven to be effective in the future.

ALTERNATIVES CONSIDERED

Alternatives considered included the no action alternative (Alternative 1) that is the continuation of current IPM bark beetle management techniques, and the preferred alternative (Alternative 2) that includes actions identified in the no action alternative plus the use of Carbaryl and the pheromone verbenone. A third alternative, which would have expanded the area to be treated, was considered but dismissed.

Alternative 2, which is the expansion of IPM techniques, is the environmentally preferred alternative. The environmentally preferred alternative is the alternative that will promote national environmental policy as expressed by §101 of the National Environmental Policy Act. This includes alternatives that:

(1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
(2) assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
(3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
(4) preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice
(5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
(6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative 2 would provide maximum protection of park resources and values, facilitate visitor enjoyment of Rocky Mountain National Park, meet the protection of human health and safety, and maintain visitor use, thus fulfilling the requirements of all six NEPA goals. The area considered for bark beetle control represents about 1,000 acres of park land. Of these, 300 acres contain large mature pine and spruce trees that are considered high-value trees in developed areas and in identified national register historic districts.

RMNP will implement the full range of IPM techniques, including the use of Carbaryl or verbenone on only about 88 acres. In the 95 percent of RMNP that is recommended or designated wilderness, natural processes will prevail and bark beetles will not be managed unless trees infested with live beetles are located within 150 feet of the park boundary and threaten trees on adjacent private land. Using Carbaryl or verbenone poses minor safety concerns. Although visitors would have opportunities to view and visit the park, they would be excluded from some areas for 12 to 24 hours while trees are treated with Carbaryl. Because of safety concerns that would keep specific areas closed for days, verbenone will not be used. Please see attached Errata Sheets for further information.

Alternative 1 would not adequately protect high-value trees in developed areas, preserve historic and cultural aspects of national register sites, preserve culturally pleasing surroundings, or achieve a balance between population use and resource use. Because of these shortcomings, Alternative 1 fails to meet portions of goals 2 through 5 and is not as effective as Alternative 2 at meeting the goals.

After consideration of the comments received during the scoping and planning process, consideration of the comments received during the public comment period, careful review of potential resource and visitor impacts, and after developing appropriate mitigation measures to protect resources, it has been determined that Alternative 2 provides the widest range of use and enjoyment of Rocky Mountain National Park without degradation of the environment or unacceptable risk of health or safety.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse

Implementation of the preferred alternative is expected to result in some adverse impacts on soils and vegetation, natural soundscapes, aquatic, wetland and riparian communities, rare species, wildlife, wilderness, air quality, archeological resources, cultural landscapes, visitor experiences, park operations and human health and safety. These impacts range from negligible to moderate in intensity. Visitors will be inconvenienced at times at specific areas from 12 to 24 hours when Carbaryl is being used and an area is closed. Mitigation measures discussed in the EA will increase the safety margin and reduce the impact to human health and safety. Visitors will have opportunities to view the park and use park facilities while Carbaryl is being used. Impacts to high-value trees in developed areas and cultural landscapes will be minimized and long-term benefits under the preferred alternative outweigh the short-term adverse impact. Natural processes will continue unimpeded in the vast majority of the park. The impacts of Alternative 1 varied and are described in the EA.

Degree of effect on public health or safety

Because this was an important issue, the use of the insecticide Carbaryl and the pheromone verbenone was carefully analyzed. Carbaryl and verbenone impacts range from negligible to minor adverse effects depending on many factors, such as dosage, environmental conditions during application, type of exposures and an individual's sensitivity to chemicals. The pouches that contain verbenone are 1" x 3" in size and quite visible. When attached to trees in developed areas they could be handled by park visitors or employees. If the product gets in the eyes, it can cause serious damage. The recommendation would be to keep the area closed while the pouches are in place. Closures could remain in effect for days.

Potential human health effects from using Carbaryl, based on toxicity tests in laboratory animals and studies conducted on human health, were described in the EA. Mitigation measures described in the EA will help to minimize the effects on human health and safety. The public will be notified and treated areas will be clearly posted to minimize exposure. By strictly observing the mitigating measures, the effects from Carbaryl use are expected to be short-

term direct minor effects. With all of the mitigation measures in place, effects on health and safety will be minor.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

As described in the EA, negligible to moderate effects to natural or cultural resources were identified for the preferred alternative. The preferred alternative will maximize the protection of high-value trees located in developed areas and within cultural sites. Protecting high-value trees is a high priority at cultural sites. Implementing the preferred alternative and strictly observing the mitigation measures will reduce the risk to a negligible to minor effect. There are no prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas affected.

Degree to which effects on the quality of the human environment are likely to be highly controversial

Controversy on effects on the quality of the human environment for this project related primarily to the potential effects of the use of Carbaryl and verbenone. Other concerns included the risks posed by hazardous trees, the potential for wildland fire, and impacts to trees on adjacent private land. Trees that have been killed by bark beetles can become hazardous and contribute to forest fuels that can influence wildland fires that can threaten human health and safety. Grand Lake town managers, the United States Forest Service and adjacent landowners have expressed concern about bark beetles in the park and their effects on trees on adjacent private land and possible impacts to the Grand Lake Cemetery. As described in the EA, adjacent landowners will have the opportunity to work with the park in mitigating bark beetle impacts. Protection of high-value trees in developed areas of the park, including the Grand Lake Cemetery, is addressed in the plan. However, while Carbaryl is being applied, certain areas of the park would be closed from 12 to 24 hours. The sight of cutting trees or using carbaryl may affect visitors, and some may become upset. Access to areas could be limited when beetle infested trees or hazardous trees are being removed or Carbaryl is being applied.

There have been no documented visitor complaints about current bark beetle management activities. Although there have been some minor disputes about the effectiveness of ongoing and proposed management practices, the conclusion drawn in the EA is that there are no highly controversial effects.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks

As previously described, risks involved in the preferred alternative relate to public safety. Environmental and human safety impacts from using Carbaryl have been well studied as references indicate in the EA. The use of verbenone is not as well studied and its effectiveness and environmental impacts need further analysis. As described in the EA, the implementation of mitigating measures will reduce the effects to public safety. The use of a pheromone such as verbenone may still occur in the future if risks to the human environment

can be reduced to more acceptable levels. Therefore, there were no highly uncertain or unique or unknown risks identified.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration

This was not an issue of concern for individuals who commented on the plan. The bark beetle management practices that are currently being used in Rocky Mountain National Park have been used elsewhere in the National Park System. Carbaryl has been used in other units of the National Park System as well. Therefore, the preferred alternative for this project will not set any NPS precedent. The preferred alternative is consistent with management practices permitted elsewhere.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts

Cumulative effects from implementing the preferred alternative were addressed in the EA and relate to Wildland-Urban Interface fuels reduction projects, and the use of Carbaryl while areas of the park are also being treated with herbicides to control exotic plants. EAs were developed for Wildland-Urban Interface fuels management and exotic plant management and those practices are expected to continue. The Bark Beetle Management Plan EA contains mitigation measures that have been designed to minimize the effects of management activities on natural and cultural resources and park visitors. No significant cumulative effects were identified. No changes to the local economy were identified under the preferred alternative; therefore there are no cumulative effects on the local economy.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The preferred alternative will have short and long-term benefits to landscapes within historic districts listed on the National Register of Historic Places. Protection of cultural landscapes will be maximized and the action will have no effect on structures or objects listed on the National Register of Historic Places. Compliance with §106 of the National Historic Preservation Act was completed by the park archeologist and consultation with the Colorado State Historic Preservation Office occurred by phone. The State Historic Preservation Officer concurred with the park archeologist that there will be no adverse impact.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat

Rocky Mountain National Park contains extensive potential habitat for the Canada lynx, a Federally listed threatened species. Although it appears that no lynx currently inhabit the park, preservation of potential habitat is important to the future success of ongoing reintroduction efforts being undertaken by the Colorado Division of Wildlife. The initial version of the EA that was sent out for

public review included forest thinning as a possible strategy for managing bark beetle infestations, with the implication that thinning could occur in potential lynx habitat. Although the intent was for thinning to occur only in conjunction with Wildland-Urban Interface (WUI) hazard fuel reduction projects, which were addressed in a separate Environmental Assessment in 2002, this was not clearly stated in the Bark Beetle Management Plan and Environmental Assessment. After reviewing the Bark Beetle Management Plan and Environmental Assessment, the U.S. Fish and Wildlife Service expressed concerns that potential lynx habitat could be adversely impacted by forest thinning and disruption caused by the application of the insecticide Carbaryl. Due to these concerns, the EA has been rewritten to clarify that forest thinning will only occur in conjunction with WUI hazard fuels reduction projects, and that any benefits this might have for forest health and bark beetle management is ancillary to the goal of hazard fuels reduction. The EA has also been amended to state that removal of beetle-infested trees (sanitation) and the application of insecticide within potential lynx habitat will be limited to within 150 feet of roads or parking lots. This limitation will apply to bark beetle management in locations such as the Longs Peak trailhead and campground, at Lily Lake, Bear Lake and Hidden Valley. On July 5, 2005 the U.S. Fish & Wildlife Service verbally concurred with the park's conclusion that bark beetle management activities will have no effect on Canada lynx given the amendments that have been made to the plan.

The EA evaluates the possible effects of bark beetle management activities on other Federally listed species, such as the greenback cutthroat trout, bald eagle and Mexican spotted owl. The EA concludes that there will be no effect on these species.

Whether the action threatens a violation of Federal, state, or local environmental protection law

This action violates no federal, state, or local environmental protection laws.

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the proposal will not constitute an impairment to Rocky Mountain National Park's resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the *Bark Beetle Management Plan/EA*, the public comments received, relevant scientific studies, and the professional judgment of the decision-maker guided by the direction in NPS *Management Policies* (December 27, 2000). Although the plan/project has some negative impacts, in all cases these adverse impacts are the result of actions taken to preserve and restore other park resources and values. Overall, the plan results in benefits to park resources and values, opportunities for their enjoyment, and it does not result in their impairment.

PUBLIC INVOLVEMENT

The environmental assessment was made available for public review and comment during a 30-day period ending June 3, 2005. A total of seven (7) responses were received. All the letters clearly stated a position for or against the preferred alternative (five in support and two against). The total includes 1 letter from an agency (Larimer County) and 6 individual letters. Of the seven responses, six were from nearby communities and one from outside Boulder, Grand or Larimer Counties.

Substantive comments on the EA centered on following topics: do not use Carbaryl and stay with the no action alternative, encouraging the use of a pheromone in place of Carbaryl, education, mitigation of drought conditions, fire management techniques and fire suppression exacerbating the problem, and development of a strategy for documenting trees that must be removed from historic districts. These concerns resulted in no changes to the text of the environmental assessment but are addressed in errata sheets attached to this FONSI. The FONSI and errata sheets will be sent to all those who commented on the EA.

The U.S. Fish and Wildlife Service expressed concerns about the possible impacts of forest thinning, tree removal and spraying on potential habitat for the Canada lynx. The EA has been amended to address these concerns.

CONCLUSION

The preferred alternative does not constitute an action that normally requires preparation of an Environmental Impact Statement (EIS). The preferred alternative will not have a significant effect on the human environment. Negative environmental impacts that could occur are minor or moderate in intensity. There are no significant impacts on public health, public safety, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. There would be no impact to threatened or endangered species. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended: Vaughn Baker — Superintendent — 7-11-05 — Date

Approved: Michael D Snyder — Intermountain Regional Director — 7/12/05 — Date

Errata Sheets
Bark Beetle Management Plan Environmental Assessment
Rocky Mountain National Park

Substantive comments on the Bark Beetle Management Plan Environmental Assessment centered on the following topics: do not use Carbaryl and stay with the No Action Alternative, encouraging the use of a pheromone in its place, education, mitigation of drought conditions, fire management techniques and fire suppression exacerbating the problem, and developing a strategy for documenting trees that must be removed from historic districts. The topics, which are addressed below, resulted in no changes to the text of the environmental assessment.

Do not use Carbaryl and Instead Implement the No Action Alternative or use a Pheromone

Comment: "I am sensitive to chemicals and concerned about the use of Carbaryl and its impact on wildlife and human health and safety."

Response: When developing the plan, preparers consulted numerous documents that have been cited in the EA, conducted research on the internet and talked with entomologists and an Integrated Pest Management (IPM) specialist who are experts in bark beetle ecology, management and the use of insecticides. At the time the plan was being developed, references consulted indicated that chemical attractants (pheremones) have been artificially synthesized and were commercially available, but were more effective on other species of bark beetles than the mountain pine beetle (*Dendroctonus ponderosae*) that is the principal beetle impacting trees in Rocky Mountain National Park. During the public comment period the park was asked to reevaluate the use of pheromones. In response, further research was initiated and an entomologist was contacted to see if other information was available.

A research paper was faxed to the park by a U.S. Forest Service entomologist. The paper was published in the Western Journal of Applied Forestry 18(4), 2003, pp229-232, by R.A. Progar, entitled, *Verbenone Reduces Mountain Pine Beetle Attack in Lodgepole Pine*. The research determined that significantly fewer trees were attacked and killed in verbenone plots during 2000 and 2001. However, of the plots containing verbenone, a higher percentage of large trees were attacked in the second year of treatment, suggesting that the efficacy of verbenone may diminish under increasing beetle pressure. In 2002, there were nearly twice as many trees attacked and killed in the verbenone plots as in the untreated plots. Progar hypothesized that the change in the performance of verbenone may be due to the large beetle population overwhelming the treatment or because mountain pine beetles undergo a change in their response to verbenone that may be attributed to small diameter host trees. The U.S. Forest Service used verbenone pouches along a lakeshore where Carbaryl was not recommended due to its environmental impact to aquatic resources and verbenone was considered a viable alternative.

Park staff consulted with a U.S. Forest Service entomologist on June 8, 2005 to find out if any further information was available regarding pheromones. The Progar research was discussed and the entomologist concurred with the conclusions in the paper. The entomologist also agreed that in large beetle outbreaks, such as what is occurring in the Kawuneeche Valley and in "hot spot" areas such as the Moraine Park campground, that verbenone is not as effective in protecting high-value trees as Carbaryl. He also mentioned that the pouches that contain verbenone are fairly large (1"x3") and quite visible and he would be concerned if the pouches were used in heavily visited areas of the park such as campgrounds or picnic areas. He stated that the pheromone has some health risks. In particular, it poses a health risk to children and can irritate eyes and skin if handled. He recommended that the product not be used in campgrounds, picnic areas or other developed areas where there is high visitor use. He mentioned that it would be better to keep an area closed to the public while the pouches are placed on trees. Doing so would require that an area be closed to the public until after bark beetles fly. He also estimated that the product costs about $3 to $5 to protect one tree.

Since Progar (2003) hypothesized that large beetle outbreaks can overwhelm the effectiveness of verbenone, and due to health and human safety risks expressed by the U.S. Forest Service entomologist, the park at this time has determined that using verbenone will not meet the purpose and need of the plan or the goals expressed by §101 of the National Environmental Policy Act. Therefore, limited use of Carbaryl as outlined in the Preferred Alternative is the preferred approach for protecting high value trees in the park. The park will continue to consult with entomologists, IPM specialists and will review published research to determine if using verbenone becomes more feasible.

Education and Informing the Public

Comment: "My principle comment concerns the only component of the plan I felt was lacking – perhaps intentionally. It falls under the heading of education. . . . Post signs at entrances to the park alerting visitors to the location of the sprayed areas."

Response: Chapter 2 of the Bark Beetle Management Plan EA under Strategy 6 discusses how the public will be informed about bark beetle management and control measures. Signs will be posted in treatment areas that will be bright yellow, stating the date of application and the chemical used. Signs will be posted two weeks prior to the chemical application date, and will remain in place for 60 days following application. A Communication Plan has been developed for bark beetle management, as described in the EA, and will be followed. Park visitors will be able to determine the dates and locations of proposed treatments by going to the park's web page on the internet or calling the park's information office. All persons listed in the Colorado Registry of Pesticide-Sensitive Persons were notified about the plan and were afforded an opportunity to comment.

Mitigate Drought Conditions, Forest Management Techniques and Fire Suppression that have led to the Bark Beetle Outbreak

Comment: "The Beetle Management Plan clearly defines drought as the major contributor to the causal relationship between the beetle infestation and the necessity to act on it. The one aspect of the plan that I feel would be highly beneficial to add, would be a purposeful directive to acknowledge the need to mitigate the drought conditions in the park…."

Response: The Bark Beetle Management Plan identifies 16 species of beetles known to attack pine and spruce trees in Colorado. All of them are native to the coniferous forests of the state. These beetles are recognized as part of "*natural conditions*." Preservation of natural conditions is specifically mentioned within Rocky Mountain National Park's enabling legislation. Infested and dead standing trees are valuable to wildlife, and in the vast majority of the park natural conditions will prevail and bark beetles will not be managed. However, on about 1,000 acres, beetle-infested and beetle-killed trees can cause serious problems. To mitigate concerns from drought, fire suppression and beetle-killed trees adding to forest fuels, the park in 2002 approved a Wildland-Urban Interface Fuels Management EA, and in 2004 updated the park's Fire Management Plan. Those two documents are referenced in the Bark Beetle Management Plan and discuss in detail forest management techniques and mitigation of impacts due to fire suppression. The two plans discuss fuels treatment on about 13,000 acres of park land. The three documents complement each other and will, to some degree, mitigate the effects of drought and pine bark beetles on forest health and hazard fuels.

Concerns about Wildland Fuels Accumulation due to the Bark Beetle Outbreak

Comment: "Our greatest concern for control of bark beetle infestations is the reduction of wildland fuels accumulation."

Response: The park's Fire Management Plan and Wildland-Urban Interface Fuels Management EA discuss in detail the ongoing fuels mitigation projects. As already discussed, ongoing fuels management is occurring on about 13,000 acres. The two documents and the Bark Beetle Management Plan provide the opportunity for adjacent landowners to work with the park in mitigating bark beetle impacts and wildland fuels accumulation.

Develop a Strategy for Trees that must be removed from Historic Districts

Comment: Suggest that the park uses GPS and print photos for documenting trees that must be removed from historic districts.

Response: The park archeologist will develop a strategy for documenting the trees that are removed by developing a database using GPS and print photos. "Signature Trees" that are important to the cultural landscape of historic districts will be replaced with newly planted trees if they have to be removed. The implementation of the Bark Beetle Management Plan will reduce the loss of these high-value trees. Removal of a "signature tree" in historic districts will be a last resort.

The Wild Basin area and the Wild Basin Willow Carr must be preserved and chemical use must be conservative, but ensure that Bark Beetle Management includes the Entrance to Wild Basin.

Comment: "There has already been significant damage to the forest on and near the Copeland Moraine… While we support the preferred alternative, we urge the chemical use will be conservative enough so that the integrity of wildlife in the Wild Basin willow carr near Copeland Lake can be preserved."

Response: The park has used its current bark beetle management techniques to mitigate bark beetle impacts at the Wild Basin entrance, and once the plan is approved will use the full range of IPM techniques identified in the preferred alternative. Mitigation measures in the plan are designed to protect riparian habitat. If Carbaryl is used it would only be on high-value trees located in the vicinity of the entrance kiosk and ranger station, which is well over 100 feet from the Wild Basin Willow Carr or any other riparian habitat. Because of the proximity of the Wild Basin willow carr, the preference for the area is to use the other techniques first and only consider Carbaryl as a last resort.